REMARKS

Applicant respectfully requests reconsideration and allowance of the subject application. Claim 23 has been canceled. Claims 1-22 and 36-47 are pending, of which claims 7, 20-22, and 36 have been amended.

Claim Objections

A. Claims 21 and 22 are objected to for terms that have no antecedent basis (*Office Action* p.2). Appropriate corrections have been provided herein and Applicant respectfully requests that the claim objections be withdrawn.

B. Claims 2-18, 22-23, and 36-47 are objected to for informalities. Specifically, the Office indicates that dependent claims 2-18 should begin with "The antenna element..." rather than "An antenna element...". Presumably the Office intended to object to dependent claims 21-22 (not 22-23) indicating that the claims should begin with "The waveguide..." rather than "A waveguide...". Further, the Office presumably intended to object to dependent claims 37-47 (not independent claim 36) indicating that the claims should begin with "The method..." rather than "A method..." (*Office Action* p.2). Applicant respectfully disagrees.

Applicant submits that the subject of each of these dependent claims is to be independently evaluated as a claimed invention and there is no requirement that a dependent claim refer to a previous claim beginning with "The" rather than "A" or "An". Although a dependent claim refers back to a base claim to provide a base definition of the subject, the subject of a dependent claim is itself separate and new. A dependent claim that begins with "A" or "An" clearly meets the

requirement of "referring back to and further limiting another claim or claims in the same application" (37 C.F.R. §1.75(c); MPEP 608.01(i) and 608.01(n)). Further, MPEP §608.01(n)I.A. sets forth several examples of dependent claims that begin with "A" referring back to another claim.

Accordingly, Applicant respectfully requests that the claim objections be withdrawn.

35 U.S.C. §102 Claim Rejections

Claims 1, 7, 9, 11-20, 22-23, 36-37, and 41-47 are rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,416,492 to Takahashi et al. (hereinafter, "Takahashi") (*Office Action* p.2). Claim 23 is canceled. Applicant respectfully traverses the rejection of the remaining claims.

Claims 20 and 23 are rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 4,864,314 to Bond (hereinafter, "Bond") (*Office Action* p.4). Claim 23 is canceled. Applicant respectfully traverses the rejection of claim 20.

Claim 1 recites an antenna element comprising "a channel guide coupled to the front plate and configured to confine the dielectric in a position that aligns the dielectric with the slots in the front plate", and "a back plate coupled to the channel guide and configured to enclose the dielectric within the channel guide to form an enclosed dielectric channel."

Takahashi describes a plane antenna that includes a lower conductor plate (1) and an upper conductor plate (2) between which is positioned several dielectric strips (12) (*Takahashi* Fig. 1; col.4, lines 30-50). However, Takahashi does not

show or disclose an antenna element, as recited in claim 1. Multiple antenna elements, such as recited in claim 1, form an antenna assembly (*see* claim 19 for example).

Takahashi also does not show or disclose a dielectric enclosed within a channel guide to form an enclosed dielectric channel, as recited in claim 1. The Office cites item (1) in Takahashi as a channel guide (*Office Action* p.3). Applicant disagrees because item (1) is described in Takahashi as a lower conductor plate (*Takahashi* col.4, lines 36-37). Takahashi does not enclose the individual dielectrics (12), and there is no enclosed dielectric channel of individual antenna elements because there is no channel guide between the dielectrics (12) as shown in Takahashi Figs. 1 and 2.

Applicant's Fig. 6 clearly illustrates a channel guide 504 coupled to a front plate 502, and a back plate 506 coupled to the channel guide 504 and configured to enclose the dielectric 510 within the channel guide 504 to form an enclosed dielectric channel 520 (Fig. 5), as recited in claim 1. Takahashi shows no such configuration and does not disclose each and every element of claim 1 as would be required to support the §102 rejection.

Accordingly, claim 1 is allowable over Takahashi for at least the reasons described above, and Applicant respectfully requests that the §102 rejection be withdrawn.

Claims 7, 9, and 11-19 are allowable by virtue of their dependency upon claim 1. Additionally, some or all of claims 7, 9, and 11-19 are allowable over Takahashi for independent reasons. For example:

Claim 7 recites that the channel guide includes at least a first sidewall and a second sidewall, and wherein the first sidewall and the second sidewall are each configured to prevent communication signal interference between the antenna element and an adjacent antenna element. Takahashi does not show or disclose a channel guide that includes sidewalls, as recited in claim 7.

The Office cites to sidewalls (3) shown in Takahashi Fig. 2 which are described as conductor walls of the antenna (*Takahashi* col.4, lines 38-39) (*Office Action* p.3). However, the sidewalls (3) shown in Takahashi are not sidewalls of an antenna element, as recited in claim 7. Further, the sidewalls in Takahashi do not prevent communication signal interference between antenna elements, as recited in claim 7. Accordingly, claim 7 is allowable over Takahashi and the §102 rejection should be withdrawn.

Claim 9 recites that the front plate includes a first row of one or more of the slots and a second row of one or more of the slots. Takahashi does not show or disclose a first and second row of slots for an individual antenna element, as recited in claim 9 (in combination with claim 1).

Takahashi Fig. 46 shows cross-shaped slots (31) that are formed in the upper conductor plate (2) of the antenna itself (*Takahashi* col.13, lines 10-11). However, the cross-shaped slots are not configured as first and second rows of slots for an individual antenna element, as recited in claim 9. Applicant's Fig. 1 clearly

illustrates that the front plate (106) of an antenna element (102) includes a first row (108(1)) of the one or more slots (104(1)) and a second row (108(2)) of the one or more slots (104(2)). Takahashi shows no such configuration.

Accordingly, claim 9 is allowable over Takahashi and the §102 rejection should be withdrawn.

Claim 19 recites "an antenna assembly comprising one or more antenna elements as recited in claim 1." As described above in the response to the rejection of claim 1, Takahashi does not show or disclose an antenna assembly formed from one or more antenna elements. Accordingly, claim 19 is allowable over Takahashi and the §102 rejection should be withdrawn.

Claim 20 recites "an antenna assembly comprising antenna elements each formed as a waveguide enclosing a solid dielectric".

Takahashi does not show or disclose individual antenna elements of an antenna assembly that are each a waveguide enclosing a solid dielectric, as recited in claim 20. As described above in the response to the rejection of claim 1, Takahashi only describes a plane antenna that includes conductor plates between which is positioned several dielectrics (*Takahashi* Fig. 1; col.4, lines 30-50). Takahashi does not show individual antenna elements, or antenna elements each formed as a waveguide enclosing a solid dielectric, as recited in claim 20.

Accordingly, claim 20 is allowable over Takahashi for at least the reasons described above and Applicant respectfully requests that the §102 rejection be withdrawn.

Claim 20 is also rejected over Bond. However Bond also does not show or disclose a solid dielectric, or a waveguide enclosing a solid dielectric, as recited in claim 20.

Bond describes an array of patch radiators (13) built on to an antenna (*Bond* Fig. 4; col.4, lines 34-35). Bond further describes that a patch radiator (13) includes a grid (10) formed between two dielectric layers (11) and (12) (*Bond* col.3, lines 32-34; Figs. 1 and 4). However, there is no mention in Bond of antenna elements, or of an antenna element that is formed with a waveguide enclosing a solid dielectric, as recited in claim 20.

Accordingly, claim 20 is allowable over Bond for at least the reasons described above and Applicant respectfully requests that the §102 rejection be withdrawn.

Claim 22 is allowable by virtue of its dependency upon claim 20. Additionally, claim 22 is allowable over Takahashi for independent reasons. For example, claim 22 recites that a solid dielectric is enclosed within a channel guide.

As described above in the response to the rejection of claim 1, Takahashi does not show that individual dielectrics are enclosed, and there is no enclosed dielectric channel of individual antenna elements because there is no channel guide between the dielectrics shown in Takahashi Figs. 1 and 2.

Accordingly, claim 22 is allowable over Takahashi and the §102 rejection should be withdrawn.

Claim 36 recites a method comprising "attaching the front plate, the channel guide, and the back plate together to form the antenna element of the antenna assembly, the antenna element being formed as a conductive channel that encloses a solid dielectric."

As described above in the response to the rejection of claim 1, Takahashi does not show or disclose an antenna element of an antenna assembly, or a conductive channel that encloses a solid dielectric, as recited in claim 36. Takahashi does not enclose the individual dielectrics, and there are no enclosed conductive channels of individual antenna elements because there are no channel guides between the dielectrics shown in Takahashi Figs. 1 and 2.

Accordingly, claim 36 is allowable over Takahashi for at least the reasons described above and Applicant respectfully requests that the §102 rejection be withdrawn.

Claims 37 and 41-47 are allowable by virtue of their dependency upon claim 36. Additionally, some or all of claims 37 and 41-47 are allowable over Takahashi for at least the reasons described above in response to the rejection of claims 7, 9, and 11-19.

35 U.S.C. §103 Claim Rejections

Claim 2 is rejected under 35 U.S.C. §103(a) for obviousness over Takahashi in view of U.S. Patent No. 6,094,106 to Kishino et al. (hereinafter, "Kishino") (*Office Action* p.4). Applicant respectfully traverses the rejection.

Claims 3-6, 21, and 38-40 are rejected under 35 U.S.C. §103(a) for obviousness over Takahashi in view of U.S. Patent No. 5,382,931 to Piloto et al. (hereinafter, "Piloto") (*Office Action* p.5). Applicant respectfully traverses the rejection.

Claims 8 and 10 are rejected under 35 U.S.C. §103(a) for obviousness over Takahashi in view of U.S. Patent No. 5,757,329 to Hoover et al. (hereinafter, "Hoover") (*Office Action* p.5). Applicant respectfully traverses the rejection.

Claim 2 is allowable by virtue of its dependency upon claim 1 which is allowable over Takahashi for at least the reasons described above in response to the §102 rejection of claim 1. Claim 2 is also allowable over the Takahashi-Kishino combination because Kishino does not address the deficiencies of Takahashi as described above in the response to the rejection of claim 1.

Claims 3-6 are allowable by virtue of their dependency upon claim 1 which is allowable over Takahashi for at least the reasons described above in response to the §102 rejection of claim 1. Claims 3-6 are also allowable over the Takahashi-Piloto combination because Piloto does not address the deficiencies of Takahashi as described above in the response to the rejection of claim 1.

Claims 8 and 10 are allowable by virtue of their dependency upon claim 1 which is allowable over Takahashi for at least the reasons described above in response to the §102 rejection of claim 1. Claims 8 and 10 are also allowable over the Takahashi-Hoover combination because Hoover does not address the

deficiencies of Takahashi as described above in the response to the rejection of claim 1.

Claim 21 is allowable by virtue of its dependency upon claim 20 which is allowable over Takahashi for at least the reasons described above in response to the §102 rejection of claim 20. Claim 21 is also allowable over the Takahashi-Piloto combination because Piloto does not address the deficiencies of Takahashi as described above in the response to the rejection of claim 20.

Claims 38-40 are allowable by virtue of their dependency upon claim 36 which is allowable over Takahashi for at least the reasons described above in response to the §102 rejection of claim 36. Claims 38-40 are also allowable over the Takahashi-Piloto combination because Piloto does not address the deficiencies of Takahashi as described above in the response to the rejection of claim 36.

Conclusion

Pending claims 1-22 and 36-47 are in condition for allowance. Applicant respectfully requests reconsideration and issuance of the subject application. If any issues remain that preclude issuance of this application, the Examiner is urged to contact the undersigned attorney before issuing a subsequent Action.

Respectfully Submitted,

Dated: Feb 28, 2005 By: _____

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